

## PATENT ABSTRACTS OF JAPAN

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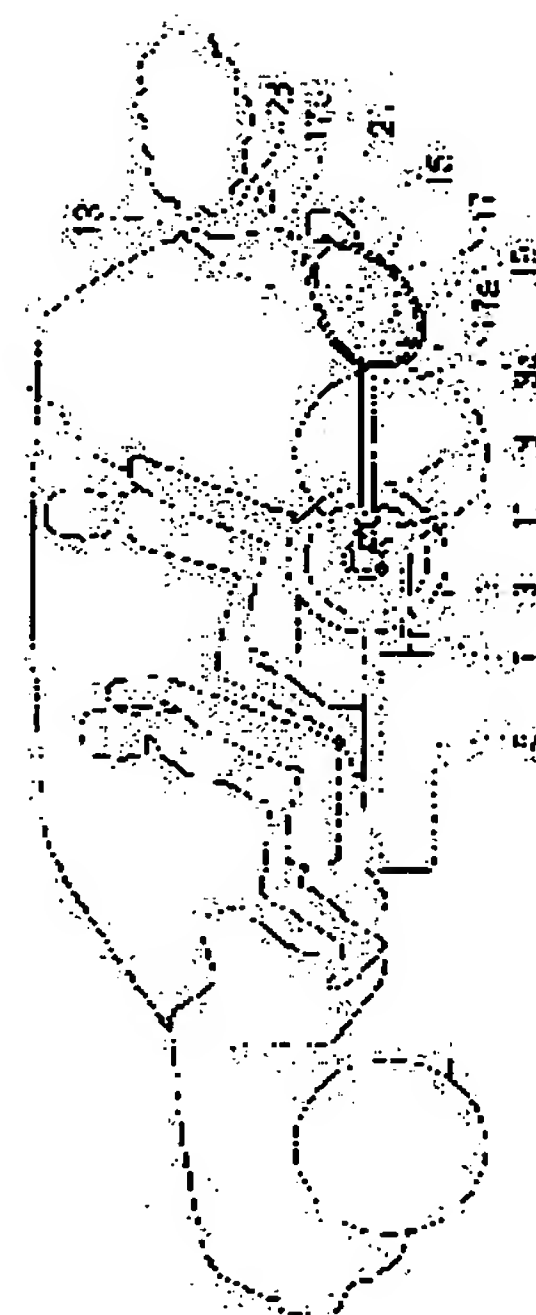
(72)Inventor : KUROIWA NATSUKI

## (54) HIGH-PRESSURE FUEL GAS STORAGE DEVICE

## (57)Abstract:

**PROBLEM TO BE SOLVED:** To reduce energy in discharging a high-pressure fuel gas to the outside.

**SOLUTION:** A gas discharge pipe 9 for discharging the high-pressure fuel gas to the outside in emergency is connected to a gas storage container 3 for storing the high-pressure fuel gas, and provided with an opening valve 11 opened when the temperature of the gas storage container 3 is over a specific limit. A gas outlet part 9a of the gas discharge pipe 9 on the downstream side from the opening valve 11 is provided with a porous member 19 and a shielding plate 15 for dispersing the jet flow of the high-pressure fuel gas discharged from a gas outlet part 9a, and the high-pressure fuel gas is discharged from the gas discharge hole 17b to the outside through the porous member 19 and the shielding plate 15.



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**CLAIMS**

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[Claim(s)]

[Claim 1]

A gas-evolution pipe which emits said high pressure fuel gas outside is connected to a gas storage container which stores high pressure fuel gas, An open valve opened when temperature of said gas storage container exceeds a fixed limit in this gas-evolution pipe is provided, A high pressure fuel gas storage device providing a shielding member which distributes a jet of high pressure fuel gas emitted from this gas outlet section in a gas outlet section of said gas-evolution pipe of the downstream of this open valve, and emitting said high pressure fuel gas to it outside through this shielding member.

[Claim 2]

The high pressure fuel gas storage device according to claim 1, wherein said shielding member is the shield countered and formed in a gas outlet section of said gas-evolution pipe.

[Claim 3]

The high pressure fuel gas storage device according to claim 1 having constituted said shielding member from a porous member, and filling up with this porous member space established in a gas outlet section of said discharge tube.

[Claim 4]

The high pressure fuel gas storage device according to claim 1, wherein said shielding member is provided with a porous member with which space formed between a shield countered and formed in a gas outlet section of said gas-evolution pipe, and this shield and the undersurface of a body floor panel of a car was filled up, respectively.

[Claim 5]

The high pressure fuel gas storage device according to claim 1 having connected a gas outlet section of said gas-evolution pipe to bumper inner space of a car, and providing said shielding member in this bumper inner space.

[Claim 6]

The high pressure fuel gas storage device according to claim 5, wherein said shielding member is provided with a porous member arranged to said bumper inner space of a position from which it separated from a released gas style which faces to a shield countered and formed in a gas outlet section of said gas-evolution pipe, and said shield from said gas-evolution pipe, respectively.

[Claim 7]

A high pressure fuel gas storage device given in either of claims 3, 4, and 6 using said porous member as incombustibles of fibrous or honeycomb shape.

[Claim 8]

The high pressure fuel gas storage device according to claim 7 constituting incombustibles of said fibrous or honeycomb shape from metal.

[Claim 9]

The high pressure fuel gas storage device according to claim 7 constituting incombustibles of said fibrous or honeycomb shape from resin.

[Claim 10]

A high pressure fuel gas storage device given in either of claims 3, 4, 6 to 9, wherein said porous

member is a striking-energy absorption member which absorbs striking energy.

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**TECHNICAL FIELD**

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[Field of the Invention]

This invention relates to the high pressure fuel gas storage device which stores high pressure fuel gas.

[0002]

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[Translation done.]

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**PRIOR ART**

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**[Description of the Prior Art]**

When the temperature of the high pressure vessel which accommodates high pressure fuel gas becomes an elevated temperature, the meltable metal provided in the safety valve fuses, in connection with this, a valve element is pushed on high pressure gas by the former 1, for example, patent documents, and opens to them, and what emits high pressure gas to the atmosphere from piping for opening is indicated to them.

[0003]

[Patent documents 1]

JP,2002-206696,A (paragraph) [0016])

[0004]

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**TECHNICAL PROBLEM**

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**[Problem(s) to be Solved by the Invention]**

By the way, in the above-mentioned conventional thing, when emitting high pressure fuel gas to the atmosphere, since fuel gas is high voltage, NERUGI at the time of jet is large, and since high-density fuel gas will be locally injected with sufficient vigor toward the exterior, it has an adverse effect to the exterior.

[0005]

Then, an object of this invention is to suppress the energy at the time of emitting high pressure fuel gas outside.

[0006]

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**MEANS**

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**[Means for Solving the Problem]**

In order to attain said purpose, this invention to a gas storage container which stores high pressure fuel gas. Connect and a gas-evolution pipe which emits said high pressure fuel gas outside in this gas-evolution pipe. An open valve opened when temperature of said gas storage container exceeds a fixed limit is provided, A shielding member which distributes a jet of high pressure fuel gas emitted to a gas outlet section of said gas-evolution pipe of the downstream of this open valve from this gas outlet section is provided, and it has composition which emits said high pressure fuel gas outside through this shielding member.

[0007]

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**DETAILED DESCRIPTION**

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**[Detailed Description of the Invention]****[0001]****[Field of the Invention]**

This invention relates to the high pressure fuel gas storage device which stores high pressure fuel gas.

**[0002]****[Description of the Prior Art]**

When the temperature of the high pressure vessel which accommodates high pressure fuel gas becomes an elevated temperature, the meltable metal provided in the safety valve fuses, in connection with this, a valve element is pushed on high pressure gas by the former 1, for example, patent documents, and opens to them, and what emits high pressure gas to the atmosphere from piping for opening is indicated to them.

**[0003]****[Patent documents 1]**

JP,2002-206696,A (paragraph) [0016])

**[0004]****[Problem(s) to be Solved by the Invention]**

By the way, in the above-mentioned conventional thing, when emitting high pressure fuel gas to the atmosphere, since fuel gas is high voltage, NERUGI at the time of jet is large, and since high-density fuel gas will be locally injected with sufficient vigor toward the exterior, it has an adverse effect to the exterior.

**[0005]**

Then, an object of this invention is to suppress the energy at the time of emitting high pressure fuel gas outside.

**[0006]****[Means for Solving the Problem]**

In order to attain said purpose, this invention to a gas storage container which stores high pressure fuel gas. Connect and a gas-evolution pipe which emits said high pressure fuel gas outside in this gas-evolution pipe. An open valve opened when temperature of said gas storage container exceeds a fixed limit is provided, A shielding member which distributes a jet of high pressure fuel gas emitted to a gas outlet section of said gas-evolution pipe of the downstream of this open valve from this gas outlet section is provided, and it has composition which emits said high pressure fuel gas outside through this shielding member.

**[0007]****[Effect of the Invention]**

According to this invention, by a shielding member, the high pressure fuel gas emitted outside from a gas storage container can distribute a jet, can suppress the energy at the time of emitting outside, and can prevent the adverse effect to the exterior.

**[0008]****[Embodiment of the Invention]**

Hereafter, this embodiment of the invention is described based on a drawing.



[0009]

Drawing 1 is rough structural drawing seen from the side of the car provided with the high pressure gas storage device in which a 1st embodiment of this invention is shown. Down the backseat 1 of this car, the gas storage container 3 which stores high pressure fuel gas is carried.

[0010]

As high pressure fuel gas stored in the gas storage container 3, it is high pressure gaseous hydrogen used, for example for the fuel cell 5, and the high pressure gaseous hydrogen in this gas storage container 3 is supplied to the fuel cell 5 through the hydrogen supply piping 7.

[0011]

The gas-evolution pipe 9 which emits high pressure fuel gas outside is connected to the gas storage container 3 in an emergency, and the safety valve 11 as an open valve opened when the temperature of the gas storage container 3 exceeds a fixed limit is formed in this gas-evolution pipe 9.

[0012]

On the other hand, behind [ vehicles ] the end of the downstream of the gas-evolution pipe 9, the space 17 formed between the body floor panel 13 and the shield 15 located under the body floor panel 13 is formed. The above-mentioned shield 15 is countered and formed in the gas outlet section 9a of the gas-evolution pipe 9, it provides over the whole region mostly and this shield 15 and the body floor panel 13 constitute the curving surface of a concave [ side / of the cross direction / which forms the space 17 / inner surface ].

[0013]

While the above-mentioned space 17 is open for free passage through the gas introduction hole 17a to the gas outlet section 9a of the gas-evolution pipe 9, it is outside open for free passage by the gas emission hole 17b located between the bumper 21 and the body 23. Two or more these gas emission holes 17b are formed along the cross direction, or let them be long long holes along the cross direction. The cross direction both ends of the space 17 are blockaded.

[0014]

And it is filled up with the porous member 19 in this space 17 that there is almost no crevice. This porous member 19 functions also as a striking-energy absorption member which absorbs the striking energy in the time of a vehicle collision while constituting it from metal which is incombustibles of fibrous or honeycomb shape. This porous member 19 and above mentioned shield 15 constitute the shielding member which distributes the jet of the high pressure fuel gas emitted from the gas outlet section 9a.

[0015]

Next, the operation by a 1st embodiment is explained. In an emergency, like the gas storage container 3 becomes an elevated temperature exceeding a predetermined value, the safety valve 11 opens wide, and the high pressure fuel gas in the gas storage container 3 is emitted to the gas-evolution pipe 9 through the safety valve 11.

[0016]

The high pressure fuel gas emitted to the gas-evolution pipe 9 is emitted in the space 17 through the gas introduction hole 17a from the gas outlet section 9a. The jet of this high pressure fuel gas to emit is changing jet energy into heat energy by this collision, and radiating heat around in that heat, and attenuates jetting energy while it collides with the porous member 19 and the shield 15 in the space 17 and distributes a jet direction effectively.

[0017]

For this reason, from the gas emission hole 17b of a vehicles rear end part, high pressure fuel gas can be emitted outside (outside of a car), without emitting the weak fuel gas of injection energy outside a car in the state where it was spread enough, and having an adverse effect to the exterior.

[0018]

Heat can be effectively radiated in the jetting energy of the high pressure fuel gas changed into heat energy with constituting the above-mentioned porous member 19 from high metal of the heat transfer coefficient which is incombustibles of fibrous or honeycomb shape.

[0019]

It replaces with the above-mentioned metal and a weight saving can be attained as a vehicle part by using fire-resistant resin compared with the case where metal is used.

[0020]

Since the porous member 19 functions as a striking-energy absorption member, also to the external shock by the time of a vehicle collision, etc., it can suppress the shock transfer to a crew member and a high pressure fuel gas storage device, and can stop the damage of a crew member and a high pressure fuel gas storage device to the minimum.

[0021]

Drawing 2 is rough structural drawing seen from the side of the car provided with the high pressure gas storage device in which a 2nd embodiment of this invention is shown. This embodiment divided the space 27 in the bumper 25 of a vehicles rear end part with the shield 29 which connects the upper part and the lower part by the side of the vehicles back end of the bumper 25, and has formed the front space 31 and the back space 33.

[0022]

the above-mentioned shield 29 -- the cross direction -- having provided covering the overall length mostly -- therefore, the front space 31 and the back space 33 -- the cross direction -- it will provide covering an overall length mostly.

[0023]

The same porous member 35 is accommodated in the upper part of the above-mentioned front space 31 also with the porous member 19 used by a 1st embodiment. This porous member 35 and shield 29 constitute the shielding member which distributes the jet of the high pressure fuel gas emitted from the gas outlet section 9a.

[0024]

The gas outlet section 9a of the gas-evolution pipe 9 was open for free passage through the gas introduction hole 31a to the front space 31 of the lower part of the porous member 35, and has countered the shield 29. That is, the porous member 35 here is arranged to the bumper inner space 27 of the position from which it separated from the released gas style which faces to the shield 29 from the gas-evolution pipe 9.

[0025]

The gas emission hole 31b which opens the front space 31 and the exterior for free passage is established in the upper part by the side of the vehicles back of the front space 31. Two or more these gas emission holes 17b are formed along the cross direction, or let them be long long holes along the cross direction. The cross direction both ends of the space 27 in a bumper are blockaded.

[0026]

In this embodiment, from the gas introduction hole 31a, the high pressure fuel gas emitted from the gas outlet section 9a of the gas-evolution pipe 9 serves as a jet, flows into the front space 31 of the lower part of the porous member 35, and carries out the direct collision of this jet to the shield 29. the high pressure fuel gas after a collision is guided at the porous member 35 arranged to the whole cross direction, after distributing to the whole cross direction -- the porous member 35 -- it passes through the whole region mostly and is emitted outside from the gas emission hole 31b.

[0027]

In this 2nd embodiment, since it has the same effect as a 1st above mentioned embodiment and also a jet is made to once collide with the shield 29, the jet of high pressure fuel gas can be promptly diffused rather than a 1st embodiment that makes a jet collide with the porous member 19 directly. Since the porous member 35 has the structure of using the space 27 in the bumper 25 effectively, it can eliminate the excessive space for arranging the porous member 35.

[Brief Description of the Drawings]

[Drawing 1]It is rough structural drawing seen from the side of the car provided with the high pressure gas storage device in which a 1st embodiment of this invention is shown.

[Drawing 2]It is rough structural drawing seen from the side of the car provided with the high pressure gas storage device in which a 2nd embodiment of this invention is shown.

[Description of Notations]

3 Gas storage container

9 Gas-evolution pipe

9a Gas outlet section

11 Safety valve (open valve)

13 Body floor panel

15 and 29 Shield (shielding member)

17 Space

19 and 35 Porous member (shielding member)

27 Bumper inner space

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**DESCRIPTION OF DRAWINGS**

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**[Brief Description of the Drawings]**

**[Drawing 1]**It is rough structural drawing seen from the side of the car provided with the high pressure gas storage device in which a 1st embodiment of this invention is shown.

**[Drawing 2]**It is rough structural drawing seen from the side of the car provided with the high pressure gas storage device in which a 2nd embodiment of this invention is shown.

**[Description of Notations]**

3 Gas storage container

9 Gas-evolution pipe

9a Gas outlet section

11 Safety valve (open valve)

13 Body floor panel

15 and 29 Shield (shielding member)

17 Space

19 and 35 Porous member (shielding member)

27 Bumper inner space

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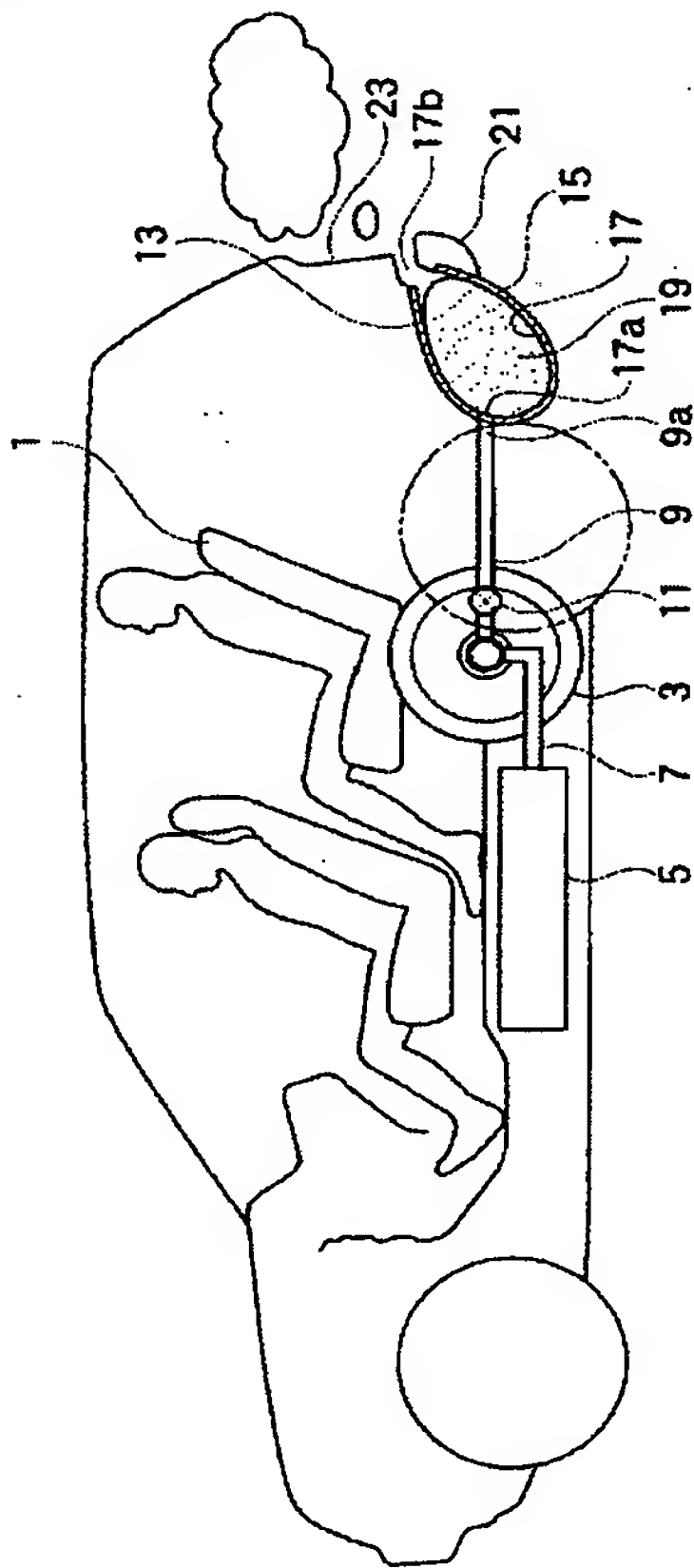
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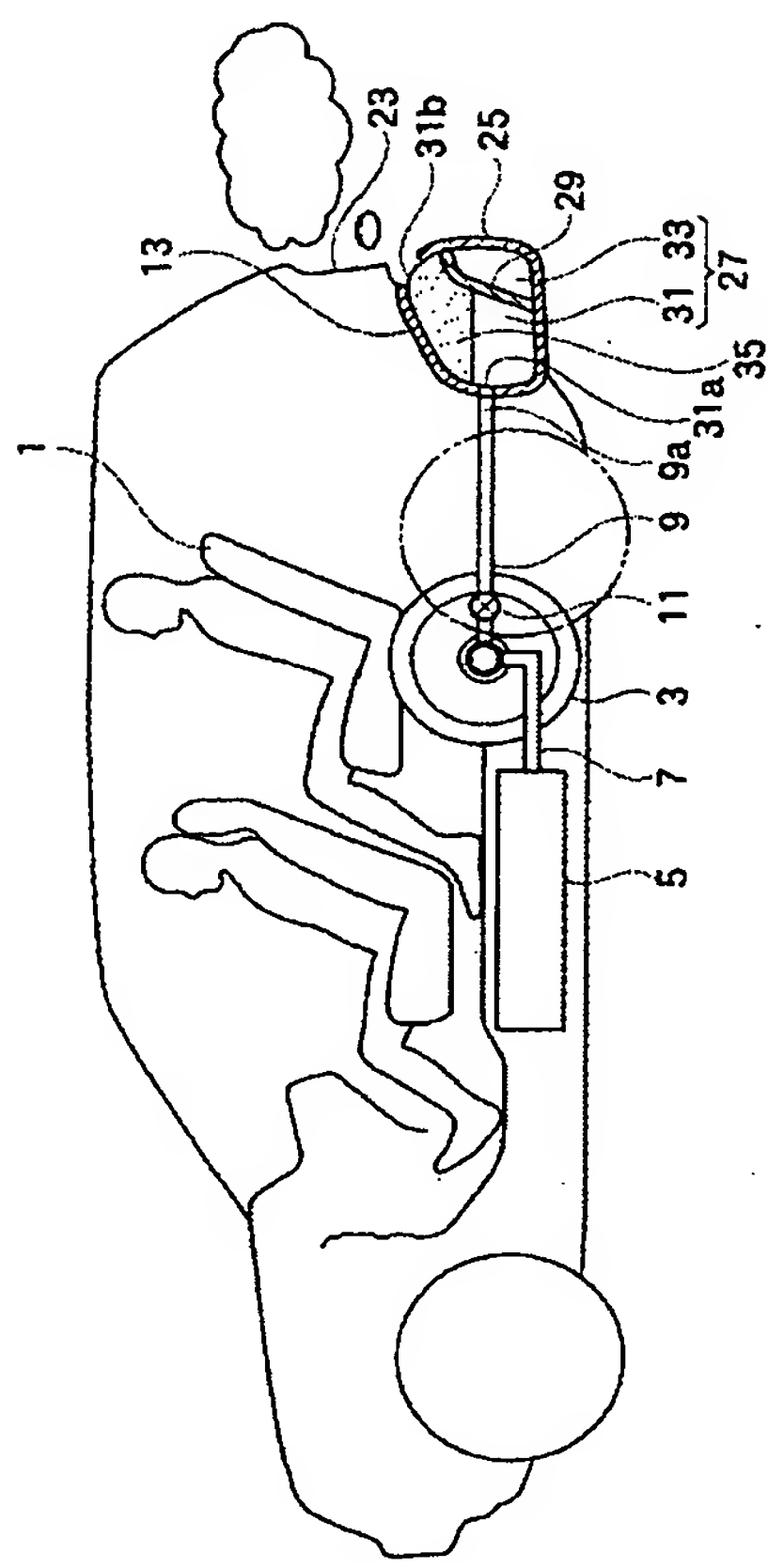
DRAWINGS

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[Drawing 1]



[Drawing 2]



[Translation done.]



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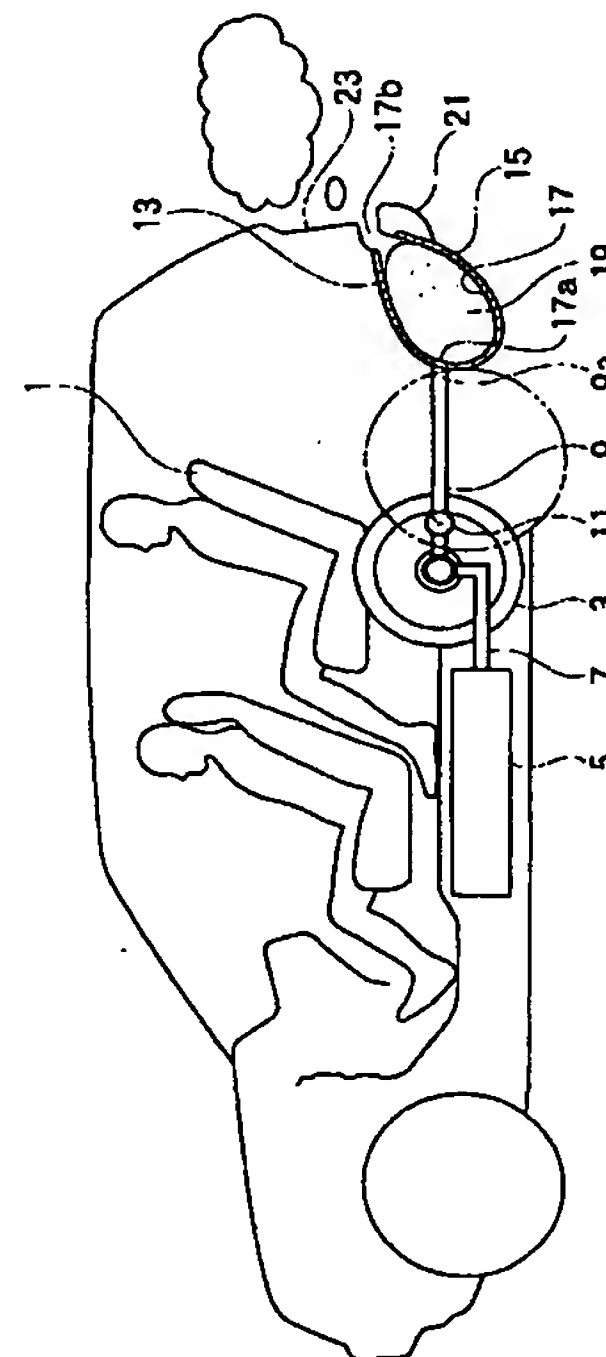
(54) 【発明の名称】 高圧燃料ガス貯蔵装置

## (57) 【要約】

【課題】 高圧燃料ガスを外部に放出する際のエネルギーを抑える。

【解決手段】 高圧燃料ガスを貯蔵するガス貯蔵容器3に、高圧燃料ガスを緊急時に外部に放出するガス放出管9を接続し、ガス放出管9に、ガス貯蔵容器3の温度が一定限度を超えたときに開放する開放弁11を設ける。開放弁11の下流側のガス放出管9のガス出口部9aに、ガス出口部9aから放出する高圧燃料ガスの噴流を分散させる多孔質部材19および遮蔽板15を設け、この多孔質部材19および遮蔽板15を経て、高圧燃料ガスをガス放出孔17bから外部に放出する。

【選択図】 図1



## 【特許請求の範囲】

## 【請求項 1】

高圧燃料ガスを貯蔵するガス貯蔵容器に、前記高圧燃料ガスを外部に放出するガス放出管を接続し、このガス放出管に、前記ガス貯蔵容器の温度が一定限度を超えたときに開放する開放弁を設け、この開放弁の下流側の前記ガス放出管のガス出口部に、このガス出口部から放出する高圧燃料ガスの噴流を分散させる遮蔽部材を設け、この遮蔽部材を経て前記高圧燃料ガスを外部に放出することを特徴とする高圧燃料ガス貯蔵装置。

## 【請求項 2】

前記遮蔽部材は、前記ガス放出管のガス出口部に対向して設けた遮蔽板であることを特徴とする請求項 1 記載の高圧燃料ガス貯蔵装置。

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## 【請求項 3】

前記遮蔽部材を多孔質部材で構成し、この多孔質部材を、前記放出管のガス出口部に設けた空間に充填したことを特徴とする請求項 1 記載の高圧燃料ガス貯蔵装置。

## 【請求項 4】

前記遮蔽部材は、前記ガス放出管のガス出口部に対向して設けた遮蔽板と、この遮蔽板と自動車の車体フロアパネルの下面との間に形成した空間に充填した多孔質部材と、をそれぞれ備えていることを特徴とする請求項 1 記載の高圧燃料ガス貯蔵装置。

## 【請求項 5】

前記ガス放出管のガス出口部を、自動車のバンパ内空間に接続し、このバンパ内空間に前記遮蔽部材を設けたことを特徴とする請求項 1 記載の高圧燃料ガス貯蔵装置。

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## 【請求項 6】

前記遮蔽部材は、前記ガス放出管のガス出口部に対向して設けた遮蔽板と、前記ガス放出管から前記遮蔽板に向かう放出ガス流から外れた位置の前記バンパ内空間に配置した多孔質部材と、をそれぞれ備えていることを特徴とする請求項 5 記載の高圧燃料ガス貯蔵装置。

## 【請求項 7】

前記多孔質部材を、繊維状またはハニカム状の不燃物とすることを特徴とする請求項 3, 4, 6 のいずれかに記載の高圧燃料ガス貯蔵装置。

## 【請求項 8】

前記繊維状またはハニカム状の不燃物を金属で構成したことを特徴とする請求項 7 記載の高圧燃料ガス貯蔵装置。

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## 【請求項 9】

前記繊維状またはハニカム状の不燃物を樹脂で構成したことを特徴とする請求項 7 記載の高圧燃料ガス貯蔵装置。

## 【請求項 10】

前記多孔質部材は、衝撃エネルギーを吸収する衝撃エネルギー吸収部材であることを特徴とする請求項 3, 4, 6 ないし 9 のいずれかに記載の高圧燃料ガス貯蔵装置。

## 【発明の詳細な説明】

## 【0001】

## 【発明の属する技術分野】

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この発明は、高圧燃料ガスを貯蔵する高圧燃料ガス貯蔵装置に関する。

## 【0002】

## 【従来の技術】

従来、例えば特許文献 1 には、高圧燃料ガスを収容する高圧容器の温度が高温になった場合に、安全弁に設けてある可溶金属が溶融し、これに伴い弁体が高圧ガスに押されて開弁し、開放用の配管から高圧ガスを大気へ放出するものが記載されている。

## 【0003】

## 【特許文献 1】

特開 2002-206696 号公報（段落〔0016〕）

## 【0004】

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**【発明が解決しようとする課題】**

ところで、上記した従来のものでは、高圧燃料ガスを大気に放出する際には、燃料ガスが高圧であることから噴出時のエネルギーが大きく、高密度の燃料ガスが外部に向かって局所的に勢い良く噴射されることになるため、外部に対して悪影響を及ぼす。

**【0005】**

そこで、この発明は、高圧燃料ガスを外部に放出する際のエネルギーを抑えることを目的としている。

**【0006】****【課題を解決するための手段】**

前記目的を達成するために、この発明は、高圧燃料ガスを貯蔵するガス貯蔵容器に、前記高圧燃料ガスを外部に放出するガス放出管を接続し、このガス放出管に、前記ガス貯蔵容器の温度が一定限度を超えたときに開放する開放弁を設け、この開放弁の下流側の前記ガス放出管のガス出口部に、このガス出口部から放出する高圧燃料ガスの噴流を分散させる遮蔽部材を設け、この遮蔽部材を経て前記高圧燃料ガスを外部に放出する構成としてある。

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**【0007】****【発明の効果】**

この発明によれば、ガス貯蔵容器から外部に放出する高圧燃料ガスは、遮蔽部材によって噴流を分散し、外部に放出する際のエネルギーを抑えることができ、外部への悪影響を防止することができる。

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**【0008】****【発明の実施の形態】**

以下、この発明の実施の形態を図面に基づき説明する。

**【0009】**

図1は、この発明の第1の実施形態を示す高圧ガス貯蔵装置を備えた自動車の側面から見た概略的な構造図である。この自動車の後部座席1の下方には、高圧燃料ガスを貯蔵するガス貯蔵容器3を搭載している。

**【0010】**

ガス貯蔵容器3に貯蔵する高圧燃料ガスとしては、例えば燃料電池5に使用する高圧水素ガスであり、このガス貯蔵容器3内の高圧水素ガスは、水素供給配管7を通して燃料電池5に供給する。

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**【0011】**

また、ガス貯蔵容器3には、緊急時に高圧燃料ガスを外部に放出するガス放出管9を接続しており、このガス放出管9には、ガス貯蔵容器3の温度が一定限度を超えたときに開放する開放弁としての安全弁11を設けてある。

**【0012】**

一方、ガス放出管9の下流側の端部の車両後方には、車体フロアパネル13と、車体フロアパネル13の下方に位置する遮蔽板15との間に形成した空間17を設けてある。上記した遮蔽板15は、ガス放出管9のガス出口部9aに対向して設けてあり、この遮蔽板15および車体フロアパネル13は、車幅方向のほぼ全域にわたり設け、空間17を形成する内面側が凹状の湾曲面を構成している。

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**【0013】**

上記した空間17は、ガス放出管9のガス出口部9aにガス導入孔17aを通して連通する一方、パンパ21と車体23との間に位置するガス放出孔17bによって外部に連通している。このガス放出孔17bは車幅方向に沿って複数設けるか、あるいは車幅方向に沿って長い長孔とする。また、空間17の車幅方向両端は、閉塞してある。

**【0014】**

そして、この空間17内に、多孔質部材19をほぼ隙間なく充填する。この多孔質部材19は、繊維状またはハニカム状の不燃物である金属で構成するとともに、車両衝突時での衝撃エネルギーを吸収する衝撃エネルギー吸収部材としても機能する。この多孔質部材19お

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よび前記した遮蔽板 15 は、ガス出口部 9 a から放出する高圧燃料ガスの噴流を分散させる遮蔽部材を構成している。

【0015】

次に、第 1 の実施形態による作用を説明する。ガス貯蔵容器 3 が所定値を超えて高温になるなどの緊急時には、安全弁 11 が開放し、ガス貯蔵容器 3 内の高圧燃料ガスを、安全弁 11 を経てガス放出管 9 に放出する。

【0016】

ガス放出管 9 に放出した高圧燃料ガスは、ガス出口部 9 a からガス導入孔 17 a を経て空間 17 内に放出する。この放出する高圧燃料ガスの噴流は、空間 17 内の多孔質部材 19 および遮蔽板 15 に衝突して噴出方向を効果的に分散するとともに、この衝突によって噴流エネルギーを熱エネルギーに変換し、かつその熱を周囲に放熱することで、噴出エネルギーを減衰させる。

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【0017】

このため、車両後端部のガス放出孔 17 b からは、噴射エネルギーの弱い燃料ガスを、充分拡散した状態で車外に放出することになり、外部に対して悪影響を及ぼすことなく、高圧燃料ガスを外部（車外）に放出することができる。

【0018】

また、上記した多孔質部材 19 を、繊維状またはハニカム状の不燃物である熱伝達率の高い金属で構成することで、熱エネルギーに変換した高圧燃料ガスの噴出エネルギーを効果的に放熱することができる。

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【0019】

また、上記した金属に代えて、難燃性の樹脂を用いることで、金属を用いる場合に比べ、車両部品として軽量化を達成できる。

【0020】

さらに、多孔質部材 19 は、衝撃エネルギー吸収部材として機能するので、車両衝突時などによる外的衝撃に対しても、乗員および高圧燃料ガス貯蔵装置への衝撃伝達を抑え、乗員および高圧燃料ガス貯蔵装置のダメージを最小限に抑えることができる。

【0021】

図 2 は、この発明の第 2 の実施形態を示す高圧ガス貯蔵装置を備えた自動車の側面から見た概略的な構造図である。この実施形態は、車両後端部のバンパ 25 内の空間 27 を、バンパ 25 の車両後端側の上部と下部とを連結する遮蔽板 29 で区切り、前方空間 31 と後方空間 33 とを設けている。

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【0022】

上記した遮蔽板 29 は、車幅方向のほぼ全長にわたって設けてあり、したがって前方空間 31 および後方空間 33 も、車幅方向のほぼ全長にわたって設けることになる。

【0023】

上記した前方空間 31 の上部には、第 1 の実施形態で使用した多孔質部材 19 もと同様な多孔質部材 35 を收容する。この多孔質部材 35 および遮蔽板 29 は、ガス出口部 9 a から放出する高圧燃料ガスの噴流を分散させる遮蔽部材を構成している。

【0024】

ガス放出管 9 のガス出口部 9 a は、多孔質部材 35 の下方の前方空間 31 に、ガス導入孔 31 a を通して連通し、かつ遮蔽板 29 に対向している。すなわち、ここでの多孔質部材 35 は、ガス放出管 9 から遮蔽板 29 に向かう放出ガス流から外れた位置のバンパ内空間 27 に配置してある。

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【0025】

また、前方空間 31 の車両後方側の上部には、前方空間 31 と外部とを連通するガス放出孔 31 b を設ける。このガス放出孔 17 b は車幅方向に沿って複数設けるか、あるいは車幅方向に沿って長い長孔とする。また、バンパ内の空間 27 の車幅方向両端は、閉塞してある。

【0026】

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この実施形態においては、ガス放出管 9 のガス出口部 9 a から放出する高圧燃料ガスは、ガス導入孔 3 1 a から、多孔質部材 3 5 の下部の前方空間 3 1 に噴流となって流入し、この噴流を遮蔽板 2 9 に直接衝突させる。衝突後の高圧燃料ガスは、車幅方向全体に分散した後、車幅方向全体に配置してある多孔質部材 3 5 に案内され、多孔質部材 3 5 のほぼ全域を通過し、ガス放出孔 3 1 b から外部に放出される。

【0027】

この第 2 の実施形態では、前記した第 1 の実施形態と同様の効果を有するほか、噴流を遮蔽板 2 9 に一旦衝突させるので、噴流を直接多孔質部材 1 9 に衝突させる第 1 の実施形態よりも、速やかに高圧燃料ガスの噴流を拡散させることができる。また、多孔質部材 3 5 は、パンパ 2 5 内の空間 2 7 を有効利用する構造となっているため、多孔質部材 3 5 を配置するための余分なスペースを排除することができる。

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【図面の簡単な説明】

【図 1】この発明の第 1 の実施形態を示す高圧ガス貯蔵装置を備えた自動車の側面から見た概略的な構造図である。

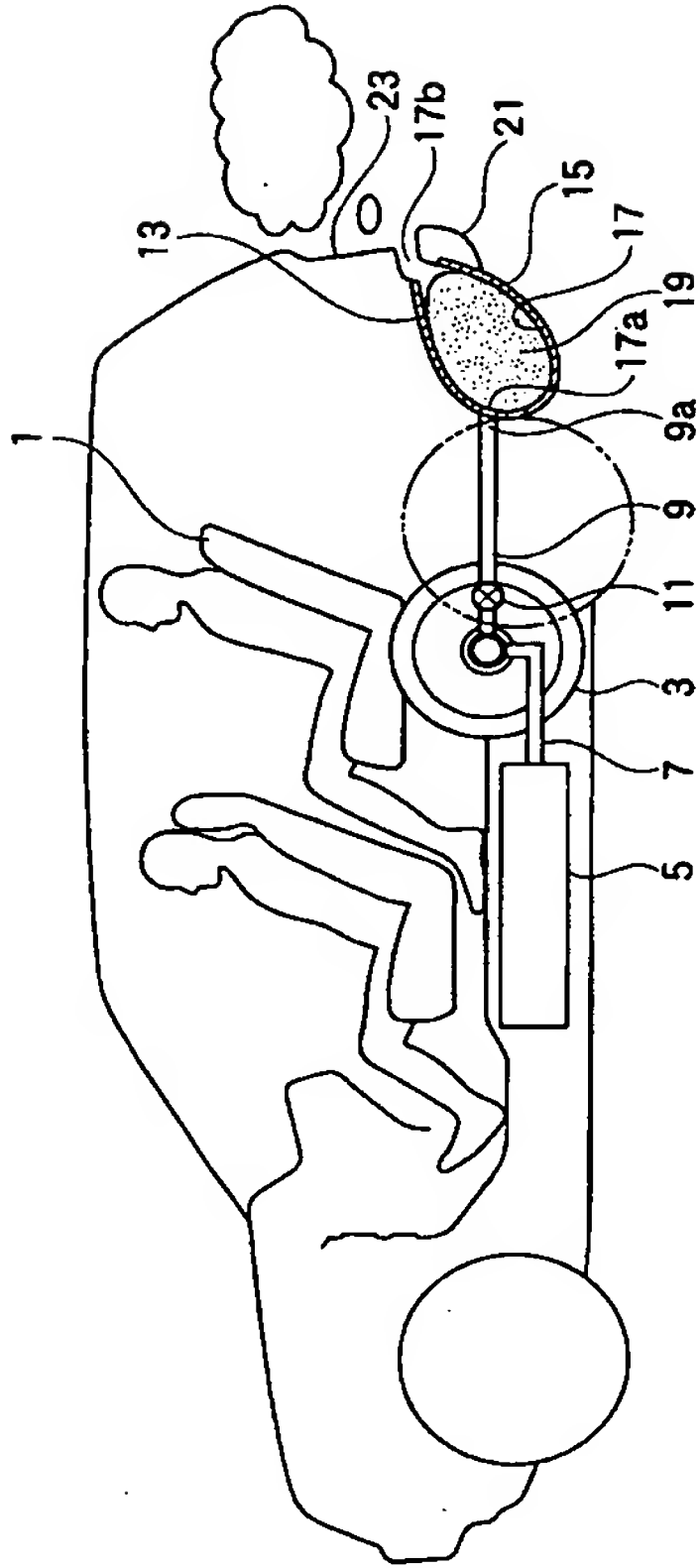
【図 2】この発明の第 2 の実施形態を示す高圧ガス貯蔵装置を備えた自動車の側面から見た概略的な構造図である。

【符号の説明】

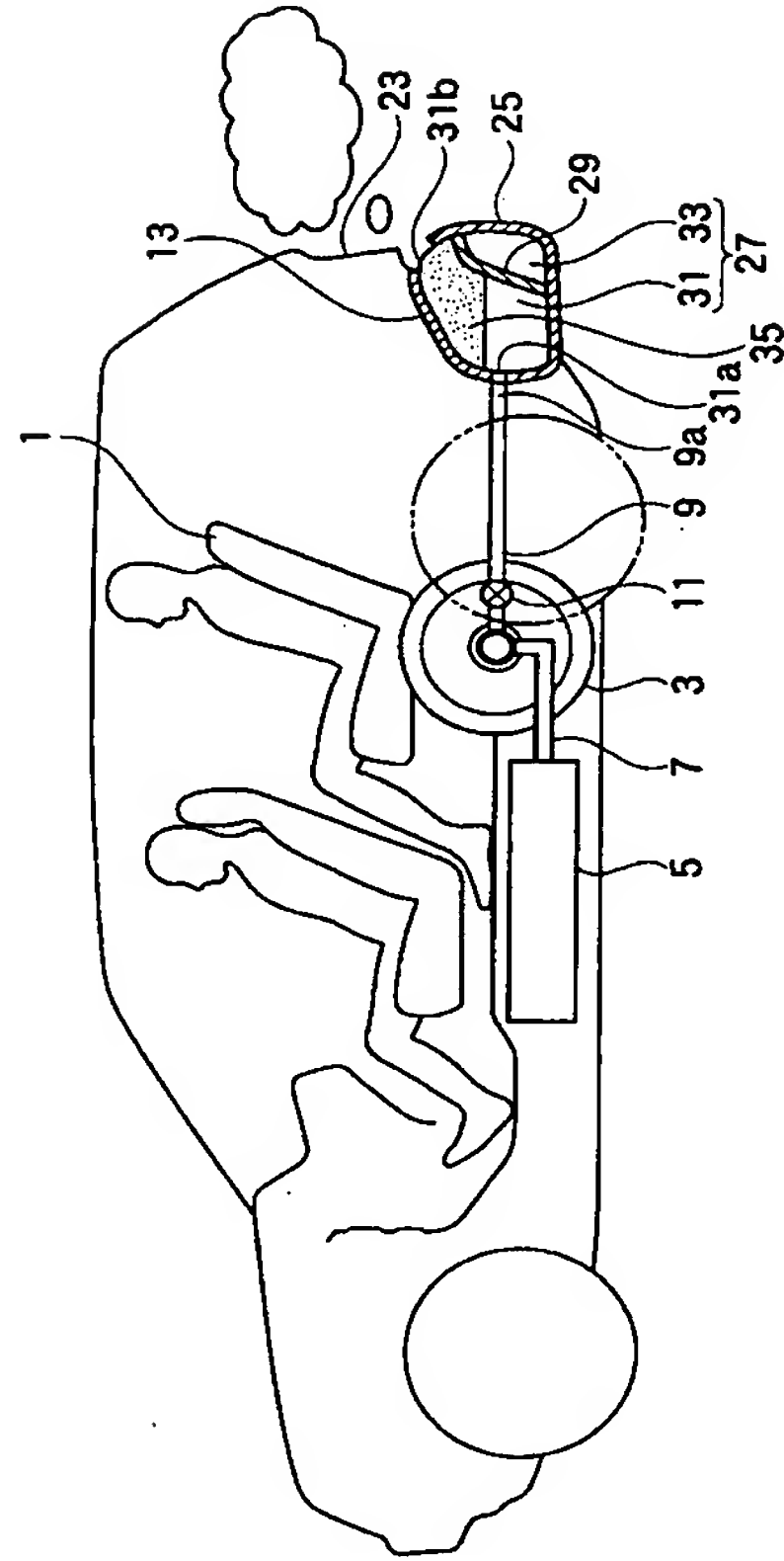
- 3    ガス貯蔵容器
- 9    ガス放出管
- 9 a    ガス出口部
- 1 1    安全弁（開放弁）
- 1 3    車体フロアパネル
- 1 5, 2 9    遮蔽板（遮蔽部材）
- 1 7    空間
- 1 9, 3 5    多孔質部材（遮蔽部材）
- 2 7    パンパ内空間

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【図 1】



【図 2】



・ フロントページの続き

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